N441 Week 9 Concepts

1) **ABC assessment prioritization**

A: airway & **C- SPINE **

- Inhalation injury (e.g. fire victim)
- Obstruction (partial or complete) from foreign bodies, debris (vomitus), or tongue
- Penetrating wounds &/or blunt trauma to upper airway structures

B: breathing

- Anaphylaxis
- Flail chest w/ pulmonary contusion
- Hemothorax
- Pneumothorax (e.g. open, tension)

C: circulation

- Direct cardiac injury (e.g. MI, trauma)
- Pericardial tamponade
- Shock (e.g. massive burns, hypovolemia)
- Uncontrolled external hemorrhage
- Hypothermia

D: disability

- Head injury
- Stroke

E: exposure

- Heat
    - **Heat cramps** : Common in athletes with inadequate fluid intake
    - **Heat Exhaustion :** Usually individuals engaged in strenuous activity in hot, humid weather, but also seen in sedentary individuals (low socioeconomic status – no AC, walking)
        - S/S: Hypotension, tachycardia, elevated body temp, dilated pupils, mild confusion, ashen color, & profuse diaphoresis are manifestations
    - **Heat Stroke:** Death directly r/t amount of time the patient's body temperature remains elevated --- goal is to reduce temperature!

        - Objective core temperature >105.3, altered mental status, *absence* of perspiration, & circulatory collapse
            - Neurologic symptoms d/t brain sensitivity to thermal injuries hallucinations, loss of muscle coordination, combativeness
- **Cold**
    - Frostbite (local) & (<) hypothermia (systemic)
        - Contributing factors
            - age, duration of exposure, environmental temperature, homelessness, pre-existing conditions, drugs that suppress shivering (opioids, antiemetics), and alcohol intoxication
        - Submersion
        - Stings/ bites

2) **Primary Survey**
    - **Component**
        - Rapid assessment of life-threatening conditions
        - Should be completed systematically
        - Use standard precautions
        - Guide primary survey with ABCDE principle

    - **Performing on a client** -- > ** SEE ABCDE assessment above

3) **ESI Triage**
    - Assess acuity level
    - Prioritize patients based on CC and presentation

Definition	ESI-1	ESI-2	ESI-3	ESI-4	ESI-5
Stability of vital functions (ABCs)	Unstable	Threatened	Stable	Stable	Stable
Life threat or organ threat	Obvious	Likely but not always obvious	Unlikely but possible	No	No
How soon patient should be seen by HCP	Immediately	Within 10 min	Up to 1 hr	Could be delayed	Could be delayed
Expected resource intensity	• High resource intensity • Staff at bedside continuously • Often mobilization of team response	• High resource intensity • Multiple, often complex diagnostic studies • Frequent consultation • Continuous monitoring	• Medium to high intensity • Multiple diagnostic studies • Complex procedures	• Low resource intensity • One simple diagnostic study	• Low resource intensity • Examination only
Examples	Cardiac arrest, intubated trauma patient, overdose w/ bradypnea, severe respiratory distress	Chest pain probably resulting from ischemia, multiple trauma unless responsive	Abdominal pain or gynecological disorders unless in severe distress, hip fracture in older patient	Closed extremity trauma, simple laceration, cystitis	Cold symptoms, minor burn, recheck (e.g. wound), prescription refill

Assess acuity level

- Resuscitation Level 1 cardiac arrest/ AW obstruction
- Emergent Level 2. Chest pain ***with cardiac history***
- Urgent. Level 3 abdominal pain
- Less urgent Level 4. Laceration
- Nonurgent Level 5. Simple rash

4) Opioid overdose

- Treatment: naloxone/ Narcan

- Support resp and cardio functions
- Establish IV line, obtain blood for chemical toxicologic analysis
  - Possible bolus of glucose to prevent hypoglycemia
- Admin Narcan (naloxone hydrochloride) IV/IM to reverse resp depression/coma
  - Duration of action of Narcan is shorter than heroin; repeated doses may be needed
  - Pt will be angry/combative/irritable
- Monitor for **pulmonary edema**, LOC, RR, pulse/ BP
  - Obtain a urinalysis(toxicology); EKG – Dr's
- Don't leave pt unattended – they can slip into coma again rapidly

5) Acetaminophen OD

- **Manifestations**:
  - Phase 1 (24 hrs of ingestion)
    - **malaise, diaphoresis, N/V**
  - Phase 2 (24-48 hrs after ingestion)
    - **RUQ pain (LIVER*), elevated LFTs, decreased UO, diminished nausea**
  - Phase 3 (72-96 hrs after ingestion):
    - **jaundice, hepatomegaly, possible coagulopathies (DIC), *hypoglycemia***
  - Phase 4 (7-8 days after ingestion):
    - **Recovery & resolution of sx, OR**
    - **permanent liver damage, LFTs remain high**
- **Tx**:
  - Gastric lavage (if w/in 1hr after ingestion)
  - Admin **N-acetylcysteine** - PO or IV asap: replenishes essential liver enzymes

        - PO may cause n/v
    - **Charcoal absorbs N-acetylcysteine – DON'T admin together**
    - **Charcoal must be shaken 1st prior to admin**
    - **Never induce vomiting – risk of aspiration
    - Keep pt in hospital at least 6hr for monitoring exposure/ingestion

6) **Hypothermia:** Manifestations

*Systemic: takes priority in tx over frostbite *

- Core temp is <35C/95F
- Elderly/ babies, those w/ concurrent illness
    - **homeless at risk
    - <4, >65 = at risk
- Alcohol = **vasodilator –> risk** of heat loss
- Meds (phenothiazines), hypothyroidism, or SCI decrease shivering ability
- Trauma victims at risk d/t tX w/ cold fluids, unwarmed (??) O2, exposure during exam

7) **Frostbite:** Nursing Interventions

- Interventions:
    - Remove constricting/wet clothes/jewelry
    - Cardiac monitoring, bear hugger (warming blanket) on direct skin (no barriers)
    - Warm fluids
    - Controlled rapid warming
    - Restore normal body temp
        - Circulating bath/whirlpool bath for 30-40mins at a time
        - Analgesics given for pain during warming period; **elevate body part once warmed to control edema**
        - Sterile gauze/cotton placed between fingers/toes and bulky dressing placed on extremity – use aseptic technique
        - Escharotomy (incision through eschar): prevent further damage to tissue and allow for normal circulation and joint motion
            - Fasciotomy: tx for compartment syndrome; use if escharotomy unsuccessful
    - Don't massage bc pt may not be able to feel it
    - **lower extremity affected – don't ambulate**

8) **Consent -- >** Unresponsive patients

You need consent to touch a patient/examine them

- If pt is unconscious upon arrival – **document this** & consider "implied consent"
- Consent for procedures should be obtained when necessary

9) Heat Stroke: Manifestations

- Core temp >105.3
- Altered mental status, confused/ coma/ seizures/ delirium
- Absence of perspiration (anhidrosis) and circulatory collapse
- Hot, dry skin; tachypnea, tachycardia, hypotension (shock sx)
- Neurologic sx:
  - hallucinations, loss of muscle coordination, combativeness, HA, anxiety, syncope, gooseflesh (horripilation), orthostasis
- Death directly r/t amount of time pt's body temp remains elevated

- change pt in ED, don't use temporal site if diaphoretic, cooling blanket, compresses, monitor temp at same site (typically oral)
  - goal = bring down temp controlled

10) Airway obstruction: Manifestations

- Can't speak, breathe or cough
- Universal distress signal – hands on throat
- Choking, apprehensive, refusing to lie flat, stridor, labored breathing, accessory muscles, flaring nostrils, anxiety, **restless, confusion**
- **Cyanosis and LOC = *late sx***

11) RACE acronym for fire

- Rescue/ remove pt's in the near area
- Activate alarm
- Contain – close doors
- Extinguish

12) Carbon monoxide poisoning

- Manifestations
  - HA, impaired judgment, confusion
  - Dyspnea, respiratory depression,
  - TC, cyanosis, erythema (cherry/ pinkish skin)
- tX: Removal from source, **administration of 100% O2** via NRB, BMV, or intubation/ MV, **consider hyperbaric** O2 therapy

N441 Week 10 Concepts

13) Nursing roles during a disaster

- May be asked to perform duties outside usual scope of practice
    - Just in time training
        - Teach them how to do it once and then they perform this task
            - suturing
            - put in chest tube
- Rn may act as a triage officer; delegate to others too
    - ** Disaster = New settings and atypical roles for nurses arise during a disaster
        - Preform outside of scope

14) Triage officers during a disaster

- A nurse may serve as a triage officer during times of disaster
    - Delegate to others

15) HICS/ ICS

- ***Hospital*** **Incident Command System (HICS**) is a modification of the ICS that is used by both hospitals and law enforcement agencies
    - HICS incident commander is the hospital's Emergency Preparedness Coordinator who oversees and coordinates all efforts surrounding the event
    - HICS identifies facility responsibilities and channels of reporting
    - COORDINATE EFFORTS to make sure people get to where they need to be
- **ICS incident command center:**
    - Federally mandated command structure that coordinates personnel, facilities, equipment, and communication in emergent situation
    - In charge of planning and transporting pts during emergent and disaster situations
        - Must efficiently distribute resources
            - National guard (security)/ Homeland security (FEMA [federal emergency management agency])
            - Red cross (shelter, food, water, medical care)
            - Dpt. of justice (FBI) – scene control – control looting
            - OEM (office of emergency management)/OES (emergency services): provide interagency coordination during emergency – disaster relief **at state and local level**

- HICS:
    - Modification of ICS used by **both hospitals and law enforcement agencies**
    - HICS = hospital emergency preparedness coordinator who oversees and coordinates all efforts surrounding the event
    - IDs facility responsibilities and channels of reporting

16) *Disaster* Triage

Overall Goal: do greatest good for highest number of people

- decisions **based on likelihood of survival and consumption of available resources**
- "Disaster"
    - Any human-made or natural event that causes destruction and devastation that **can't be alleviated w/o assistance**
- "MCI" (mass casualty incidents)
    - Any incident that causes large no. of casualties in which necessary resources become scarce
- **ID pts by:**
    - *****injuries, name, age/ DOB, tx done/meds given (W/ TIMES), color-coded tag (black, red, yellow, green)**
    - Put as much info on tag as possible

- Assign tag color
- Prioritize by acuity

Triage Category	Priority	Color	Typical Conditions
Immediate: Injuries are life threatening but survivable with minimal intervention. Individuals in this group can progress rapidly to expectant if treatment is delayed.	1	Red	Sucking chest wound, airway obstruction secondary to mechanical cause, shock, hemothorax, tension pneumothorax, asphyxia, unstable chest and abdominal wounds, incomplete amputations, open fractures of long bones, and 2nd/3rd degree burns of 15%–40% total body surface area
Delayed: Injuries are significant and require medical care but can wait hours without threat to life or limb. Individuals in this group receive treatment only after immediate casualties are treated.	2	Yellow	Stable abdominal wounds without evidence of significant hemorrhage; soft tissue injuries; maxillofacial wounds without airway compromise; vascular injuries with adequate collateral circulation; genitourinary tract disruption; fractures requiring open reduction, débridement, and external fixation; most eye and central nervous system injuries
Minimal: Injuries are minor, and treatment can be delayed hours to days. Individuals in this group should be moved away from the main triage area.	3	Green	Upper extremity fractures, minor burns, sprains, small lacerations without significant bleeding, behavioral disorders or psychological disturbances
Expectant: Injuries are extensive, and chances of survival are unlikely even with definitive care. Persons in this group should be separated from other casualties, but not abandoned. Comfort measures should be provided when possible.	4	Black	Unresponsive patients with penetrating head wounds, high spinal cord injuries, wounds involving multiple anatomic sites and organs, 2nd/3rd degree burns in excess of 60% of body surface area, seizures or vomiting within 24 hours after radiation exposure, profound shock with multiple injuries, agonal respirations; no pulse, no blood pressure, pupils fixed and dilated

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18) Emergency preparedness kits

- Items to include
    - Back pack, personal ID, clean clothing, sturdy footwear; pocket-knife; *3-day* supply of water; *3-day* supply of non-perishable food; blankets/sleeping bag/pillow; first aid kit; ***adequate supply of prescription medications***; battery operated radio; flashlight & batteries; credit card/cash/traveler's checks; extra set of keys and full tank of gas in the car; cell phone; toiletries; matches in waterproof container

19) Burns:

- **Escharotomy**
    - **Patient education**
        - Partial-thickness wounds form eschar; once eschar is removed, re-epithelialization begins at wound margins & appears as red or pink scar tissue
- **Wound care**
    - Nursing interventions
        - Done during the acute phase
            - Considered a "major therapeutic intervention" of the acute phase
        - Flush chemical from wound & surrounding area w/ copious amounts of saline solution or water
        - Cleansing and gentle debridement (using scissors & forceps) during a regular shower or w/ patient in bed
        - Once daily shower & dressing change w/ an evening dressing change in the patient's room are often routine in burn centers
        - Extensive, surgical debridement done in OR
        - Patients find 1st wound care to be both physically & mentally demanding; provide emotional support & begin to build trust during this activity
        - INFECTION can cause further tissue injury & possible sepsis
        - Source of infection is likely the patient's own normal flora, mostly from skin, respiratory, & GI system,

- Always wear PPE and use sterile gloves when applying ointments & sterile dressings
- Permanent skin coverage is the primary goal autograft (patient's own skin) or allograft (cadaver skin) is generally used; newer biosynthetic options are now available
- Increase caloric intake
- Vitamins ACE, multivitamins, zinc, ferrous sulphate
- Partial-thickness wounds form eschar; once eschar is removed, re-epithelialization begins at wound margins & appears as red or pink scar tissue

- **Emergent phase – burn – 72 hrs :** The primary goal is to maintain a patent airway, administer IV fluids to prevent hypovolemic shock, & preserve vital organ functioning
  - Emergent (resuscitative) phase is time required to resolve the immediate, life-threatening problems resulting from burn injury
  - Primary concerns onset of hypovolemic shock & edema formation
  - **Nursing Interventions**
    - Begins at time of injury
    - Ends w/ restoration of normal capillary permeability
    - Duration usually 48-72 hr
    - Includes prehospital care & emergency care
    - Assess bowels - may have paralytic ileus d/t shunted blood to vital organs
    - Protect from infection – where sterile gloves during ointment application and dressing changes
    - Hydration
    - Monitor for hypovolemic shock and AW edema

- Monitor lab:
- **Hyperkalemi**a – immediately after burn d/t massive cell destruction (decrease BP, muscle twitching/cramps, paresthesia)
  - **Hypokalemia -** later w/ fluid shifts (**shallow** resp, confused, weak, **thready** pulse, n/v)
- **Hyponatremia** - during burn shock d/t plasma loss/ 3rd spacing as well as during 1st wk of acute phase (lethargic, HA, confused, seizures, coma)
- Elevated hgb, hct, BUN, glucose (d/t stress)/ dehydration [hemo]
- **Carboxyhemoglobin**: more than 10% - IDs smoke inhalation

20) Assessing severity of burns

- Electric burns hard to assess – most of the damage is below the skin
- **Severity dX via**

- **Depth of burn**
- **Extent of burn**
- **Location of burn. -- > rule of nines**
- **Patient risk factors**

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22) Rule of Nines

- **Calculate TBSA affected**
- Head in whole = 9&
- Anterior midline = 18%
- Posterior midline = 18%
    - Trunk – 36%total
- Each arm in full capacity = 9%
- Each leg in full capacity = 18%
- Peri area in whole = 1%

23) Prioritize nursing interventions based on TBSA

- Remove pt from source of burn and stop burning process
- **Circulation = #1 for unconscious pt – CAB**
    - (“unconscious call CAB!”)
- Burn pt may have other injuries that are priority over the burn!!!
    - Internal bleed/ C-spine fracture/ Pneumothorax

24) Fluid resuscitation

- **Fluids used, over what timeframes**
    - ***LR***
        - ½ over first 8 hrs
        - Next ½ over last 16 hrs
    - 4 mL per kg X % burned

Calculate using Parkland Baxter formula :

- ***4mL LR/kg X %TBSA burn***

- **Signs of adequate replacement**
  - **Improvements in vitals/ cap refill/ LOC/ UO**

25) Facial burns

- **Priority assessment**
  - Airway

26) Anticipated electrolyte imbalances

- Major electrolyte shifts of Na+ & K+
- Potassium shift develops d/t injured cells & hemolyzed RBCs release potassium into circulation hyperkalemia
- Sodium rapidly moves to interstitial spaces & remains there until edema formation ends hyponatremia

27) Inhalation injury:

- **Treatment**
- **Nursing interventions**
  - Provide supplemental O2 as needed
  - Anticipate endotracheal intubation & mechanical ventilation w/ circumferential full-thickness burns to neck and chest or large TBSA burn
  - Monitor VS, LOC, respiratory status, O2sat, & heart rhythm
- RN to instruct pt to install smoke and CO detectors; change batteries annually
- Rapid initial and ongoing assessment = critical
- Airway compromise and pulmonary edema can develop over 1st 24-48hr
  - AW edema 8 -12 hrs

28) Circumferential burns

- **Nursing interventions**
  - Escharotomy
  - Anticipate endotracheal intubation & mechanical ventilation w/ circumferential full-thickness burns to neck and chest or large TBSA burn

29) Circumferential burns to extremity

- Can cause circulation problems distal to the burn, with possible nerve damage to the affected extremity
  - RN to assess NVS distal to burn
- Patients may also develop compartment syndrome from direct heat damage to the muscles, swelling, &/or pre-burn vascular problems

Med calc Q.